# THE IMPACT OF PERCEIVED RISK FROM CHALLENGE COURSES ON GROUP COHESION

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## ABSTRACT

The Impact of Perceived Risk from Challenge Courses on Group Cohesion

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The purpose of this study was to assess the impact of perceived risk from high elements in a challenge course on group cohesion. Participants who have not participated in a challenge course will be selected from a First Year Experience cohort at a California State University ($n$=100). Six randomly selected teams of 12 to 17 people will participate in three and a half hour challenge course programs. Half of the groups completed only low elements, while the other half completed a combination of low and high elements. A pre, mid, and post test of the Group Cohesion Evaluation Questionnaire was administered. A One-way ANOVA between groups was performed to find statistical differences. It is hypothesized that participants will feel an increase in group cohesion as a result of perceived risk from high elements as opposed to those who participate in low elements only and do not feel perceived risk.


Keywords: perceived risk, group cohesion, challenge course, high-elements

TABLE OF CONTENTS

# LIST OF TABLES

# LIST OF FIGURES

Table Page

# CHAPTER 1

## Introduction

Adventure education has become a popular vehicle for enhancing the growth of individuals and groups. Adventure education programs take on many shapes and forms, but ultimately use perceived risk and elements of the outdoors to produce uncertain outcomes. A challenge course, also known as a ropes course, is one such program within adventure education. It is estimated that over 15,000 challenge courses exist in the United States today (Attarian, 2001) and most are used for a combination of recreational, educational, developmental, or therapeutic purposes (Priest & Gass, 2005).

Past research in challenge courses support many outcomes, such as improved self-efficacy, enhanced communication skills, better trust, and increased group cohesion (Goldenberg, Klenosky, O'Leary, & Templin, 2000). While these outcomes are the reason for participation, it is equally important to know the steps or activities that lead to certain outcomes. Recent research has started to explore this; however, there is little research that shows the impact of perceived risk on some of these outcomes (Wolfe & Samdahl, 2005), specifically group cohesion. Also, some research has declared that this is an ongoing need as programs and participants change over time.

Adventure education programmers purposefully manipulate activities to address levels of perceived risk. This is done in an effort to guide clients toward certain outcomes (Luckner & Nadler, 1997). The question is whether manipulating these activities to effect levels of perceived risk has a positive impact on the outcomes. Is it necessary to put people in a perceived risk situation to affect levels of certain outcomes? Interestingly enough, this relationship of perceived risk and outcomes is widely accepted

within field of adventure education, yet little empirical evidence exists to support it (Wolfe & Samdahl, 2005).

One series of activities that help impact levels of perceived risk in a challenge course is high elements. These activities stand 30 to 40 feet off the ground with either utility poles or trees and appear to the average person to be an oversized jungle gym. Past research with high elements is focused on self-efficacy or self-esteem (Gillis & Speelman, 2008). Since challenge courses are typically visited by teams, cohorts, or groups, it seems prudent to explore the impact of participation in high elements on group cohesion. In general, group cohesion is the founding factor for a group's performance (Stevens & Bloom, 2003), thus an important reason or outcome for a group visiting a challenge course.

## Purpose Statement

The purpose of this study was to assess the impact of perceived risk from high elements in a challenge course on group cohesion.

## Research Questions

**Question one.** Do high elements produce higher levels of perceived risk than low elements?

**Question two.** Do those who experience higher levels of perceived risk from high elements self-report higher levels in group cohesion?

**Question three.** Does participation in a low and high element challenge course produce higher levels of group cohesion than a low elements challenge course?

**Question four.** Do high element participants experiencing higher levels of perceived risk feel the outcomes from the experience are positive?

## Hypotheses

**Hypothesis one.** High elements will self-report higher levels of perceived risk than low elements.

**Hypothesis two.** Those who experience increased levels of perceived risk from high elements will self-report higher levels in group cohesion.

**Hypothesis three.** Participation in a low and high element challenge course will produce higher levels of group cohesion than a low elements challenge course.

**Hypothesis four.** High element participants experiencing higher levels of perceived risk will self-report the outcomes from the experience are positive.

## Significance

There is need for ongoing research in this dynamic field. Past research fails to provide replicable studies due to the lack of information about specific programming (Gillis & Speelman, 2008). Unlike many studies this research specifically outline what activities are being performed for all groups, thus making it easy for the next researcher to follow. In addition, this research may help provide evidence to support the use of high elements in a challenge course for reasons other than self-efficacy. It may also justify the practice of putting people in perceived risk situation for the reason of producing certain outcomes like group cohesion. Lastly, practitioners could use the findings in this study to assist in programming for group cohesion outcomes.

**Delimitations and Limitations**

This study looked only at a group of one hundred ($n$=100) college freshman enrolled in a First Year Experience Cohort at a California State University. These students were conditionally accepted into the school based on a variety of reasons, one being low test scores and grade point average from high school. Though the teams were randomly selected, making generalizations to all incoming freshmen will be difficult due to their group's specific characteristics.

A delimitation in this study was the impacts of one outcome from the challenge course: group cohesion. It is possible that other outcomes may emerge from these students' experiences at the challenge course that were positive and/or negative. They were not examined in this study.

Also, this study reviewed the cohesion from a three and a half hour program. Courses range in length from a couple hours to several days or even weeks. Drawing conclusions from a short program may not be able to be generalized to all different lengths of programs.

One limitation to this study was the inability to control weather. Summers in Central California can easily exceed 100 degrees. Having groups participate during spells of heat may have an effect on outcomes. Also, findings did not indicate that increases of cohesion on the course would be the same in everyday life or school settings.

Data gathered from this study was based on self-reported questionnaires. Obvious limitations exist when asking participants to self-report on feelings or emotions.

Also, facilitator presentation styles could not be controlled. A script was given in addition to training to help narrow the scope of difference from facilitators.

The study accounted for participants who have previously participated in a challenge course, but it did not account for other adventure programs or activities which may have an impact on the main outcome being measured.

## Definition of Terms

**Belaying.** A safety system adapted from sailing to protect climbers and ropes course participants in the case of a dangerous fall. If a person is "on belay" it implies that they are tied into a safety system that is controlled by the belayer, a person who is qualified and trained in management of rope in the case of a fall (Schoel, Prouty, & Radcliffe, 1988).

**Challenge Course.** A challenge course is a series of mental and physical activities designed to create opportunities for change and growth. Challenge courses are usually constructed of utility poles or trees, cables, and ropes to provide participants with novel experiences which are further defined by high and low elements. It is also known as a ropes course (Rohnke, Rogers, Wall, & Tait, 2007).

**Group cohesion**. It is the extent to which a group finds it mutually beneficial to work together. Also, known as a "basic bond" or "uniting force" (Glass & Benshoff, 2002).

**High elements.** Usually these challenge course activities are found 10 feet or more above ground level and require some kind of belay system for safety purposes. They can be found in trees, utility poles, or rafters. They are usually something participants work towards or culminate the day with (Martin, Cashel, Wagstaff, Breunig, 2006).

**Low elements.** They are activities of a challenge course that are usually low to the ground, generally less than a body length off the ground. They do not require a belay system, but usually require some sort of spotting for safety purposes (Martin, Cashel, Wagstaff, Breunig, 2006).

**Perceived risk.** Perceived risk is a skewed and subjective view of the potential for loss. It can, but not always will, be distinctly different from real risk (Davis-Berman & Berman, 2002).

**Risk.** Risk is defined by Collinson, Panicucci, & Prouty (2007) as the "exposure to the possibility of some loss, including physical or emotional trauma" (p. 50). Essentially, it is the likelihood of consequences happening.

# CHAPTER 2

# Literature Review

## Introduction

Challenge courses are a wonderful vehicle to get people to step outside their day to day way of life to practice and experiment with new ways of dealing with challenges. They are typically novel, physical, exciting, and encourage risk taking, thus making them an attractive way to bring groups together (Haras, Bunting, & Witt, 2005). Past research explores many aspects of a challenge course from outcomes (Goldenberg, Klenosky, O'Leary, & Templin, 2000) to design and structure (Haras, Bunting, & Witt, 2005). While most research supports the use of challenge courses, some has recently disputed a few of the fundamental assumptions (Wolfe & Samdahl, 2005). One of those assumptions is that purposefully putting a participant in a perceived risk situation produces positive outcomes. This review of literature and study explores these assumptions in three main areas; experiential education, risk, and group cohesion.

Experiential education is the foundation on which challenge courses are built. Adventure education, a form of experiential education, and the type of education challenge courses fall under is built on the groundwork that risk must be present to achieve growth and change. This is logical, since by definition in order to have an adventure some sort of risk or hazard must be present. A careful review of types of risk and their influences will help make the connections to challenge courses. Lastly, a broad array of outcomes exists within challenge courses (Goldenberg, Klenosky, O'Leary, & Templin, 2000); however, this study only looks at the outcome of group cohesion. This is primarily because groups and teams typically visit challenge courses, as opposed to

visiting as individuals. Examining group cohesion and the influence on group development will also help link its outcomes to a challenge course setting.

## Experiential Education

**Definition.** Experiential education is learning by doing with reflection. More simply, by experiencing and participating in something, learning takes place (Association of Experiential Education, 2009). It involves any combination of senses, emotions, physical conditions, and cognition in order to solve problems (Carver, 1996). Those problems can occur in both controlled environments, such as a challenge course, as well as uncontrolled situations, such as learning how to navigate your way back to your vehicle from a misguided hike in the woods. In either situation learning is practiced immediately and feedback to the learner is generally pressing. There is evidence to support that this type of first hand learning is faster, retained longer, and is greater understood than other traditional types of learning (Freeberg & Taylor, 1963).

**History.** John Dewey is credited as the leading figure that formalized experiential education. His philosophy stressed the importance and prerequisite of experience in learning (Hunt, 1995). Kraft (1985, p. 8) summarized five key aspects of Dewey's work; individuals need to be involved in what is being learned, learning through experiences must be inside and outside of the classroom, learning must be immediately relevant for learner, learners must act and live for the present as well as the future, and learning must assist learners in preparing for a changing and evolving world.

While Dewey is credited as the parent of modern experiential education, Kurt Hahn is credited for another branch of this type of learning known as adventure education. Hahn's belief in nature and the importance of experience led him to create

Outward Bound. Outward Bound is a school that places students in nature to facilitate the learning of technical skills as well as group dynamic skills (James, 1995; Wolfe & Samdahl, 2005). The importance of uncertainty and risk in the pursuit of outcomes is crucial to adventure education and Outward Bound.

Since 1962, when the first American Outward Bound School opened in Marble, Colorado, adventure education has been on the rise (Attarian, 2001). Challenge courses, originally designed as military training facilities, were adapted for adventure education purposes. Organizations like the Association for Challenge Course Technology (ACCT), founded in 1993, and the Association of Experiential Education (AEE), founded in 1977 have helped provide mediums for information to be shared (Garvey, 1995). Both have a large membership base and hold conferences annually to further the field. The AEE publishes the leading journal for reporting research in the field, the Journal of Experiential Education.

**Theories and models of learning.** There are several models of learning that help clarify the process that a participant in an experiential education program goes through. The first and most commonly referred to model is David Kolb's model of experiential education, which was originally adapted from Dewey's 1938 model of experiential learning (Priest & Gass, 2005, p. 154). Kolb's model refers to the experience as a virtuous circle, where participants start and finish with a concrete experience. These experiences can take shape in many forms like an element in a challenge course or a wilderness hiking trip. Participants move from observation and reflection to formation of an abstract concept and generalization. Then they move to testing implications of concepts in new situations, ultimately finishing with another concrete experience. Kolb's

model stresses the importance of processing, or debriefing, the adventure experience. It is important to note that a crucial component of this model as it relates to experiential education is the reflection and observation stage, without which, participants may not be able to assimilate learning (Knapp, 1992).

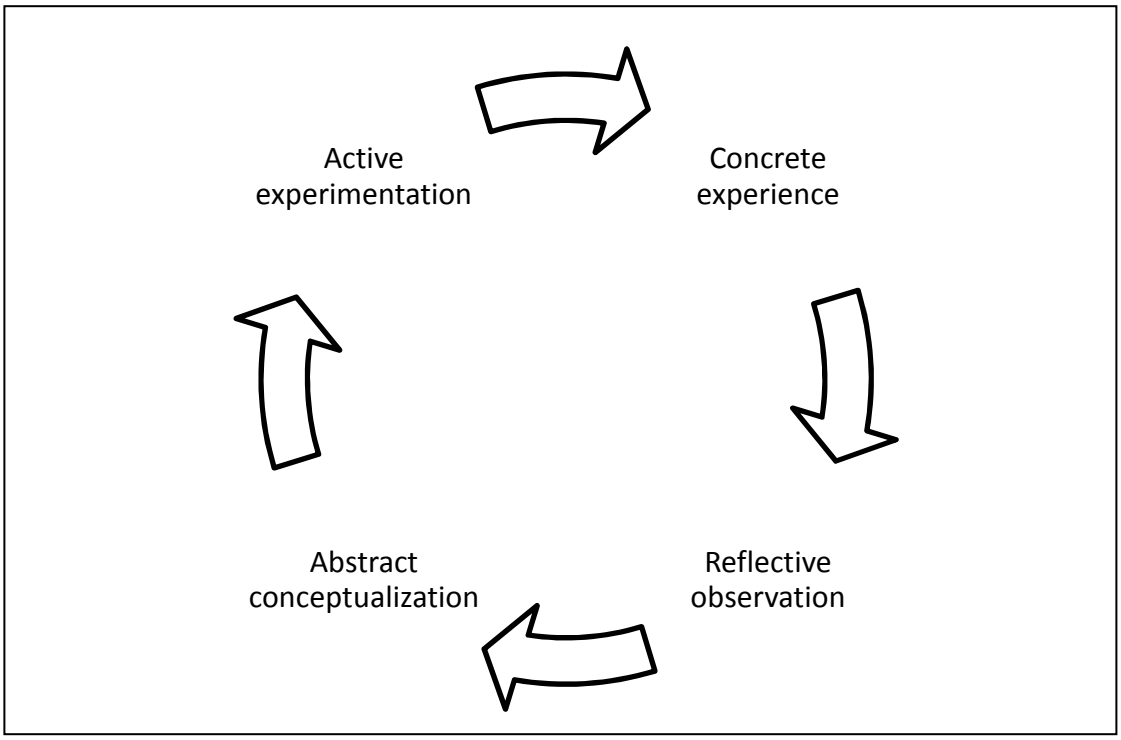


Figure 1. Kolb's Model of Experiential Learning. (Priest & Gass, 2005, p. 154).

Adventure education has many attractions, one of which is explained by Csikszentmihalyi's Theory of Flow. Flow Theory describes a point in an experience that is completely absorbing, rewarding, and well outside a state of anxiety and boredom (Csikszentmihalyi & Csikszentmihalyi, 1991). It is this intrinsic feeling of heightened awareness and control that makes adventure experience worth repeating (Priest & Gass, 2005, p. 47).

Another model important to adventure education is the Adventure Experience Paradigm. Martin and Priest (1986) adapted their model from works of Ellis (1974) and Mortlock (1984) to help explain participants' behaviors with risk and competence. The model outlines five potential states a participant could experience as a result of their perception of risk and competence (Priest & Carpenter, 1993). High competence and low risk leads a participant to an area of exploration and experimentation. On the other extreme of the model, low competence and high risk leads a participant to an area of devastation and disaster. The ideal goal is a peak adventure which is a balance of the right amount of risk and competence (Priest & Gass, 2005, p. 49-54). Getting participants to this level is one of the critiques to this theory and to adventure education (Wolfe & Samdahl, 2005). While facilitators may attempt to know what their participants are experiencing, being certain is difficult. Martin and Priest (1986) offer suggestions and caution regarding this, being incorrect in identifying the level of the group or participant could lead to the devastation and disaster stage.

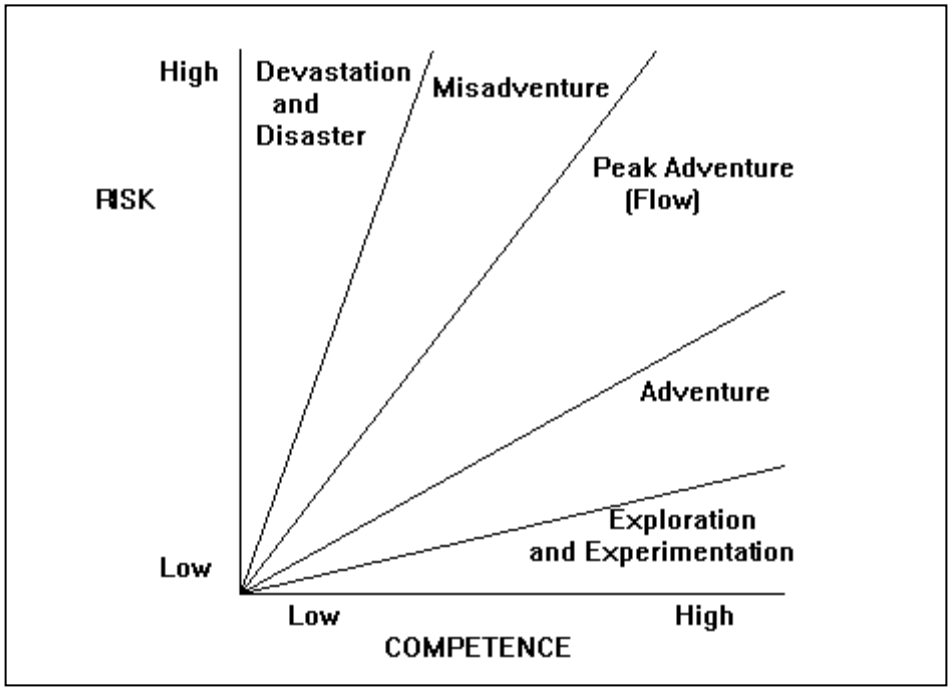


Figure 2. The Adventure Experience Paradigm. (Priest & Gass, 2005, p. 50).

A similar model to the Adventure Experience Paradigm was developed by Ewert and Hollenhorst (1994). Their model, the Adventure Recreation Model, uses individuals and activity attributes as the main variables. The model states that participants evolve from beginners to experts by changing attributes along the way. The model was put to test with a group of rock climbers and kayakers Correlations were found between the two sets of attributes (Ewert & Hollenhorst).

One theory that helps explains some of the motivations behind adventure education is Bandura's (1977) Theory of Social Learning. The theory states that people get much of their knowledge from direct experiences produced by their actions. The environment plays a role in the concepts that govern our behaviors. Those actions are reciprocated either positively or negatively based on one's performance outcome. Those outcomes tend to have a direct impact on self-efficacy (Bandura, 1978). Self-efficacy as

it relates to adventure education is more than self-confidence; it is the conviction that one has the skills and ability to master the task at hand.

The previous theories and models help identify participant behaviors in an adventure education setting. They are crucial to the understanding of experiential education and more specifically adventure education.

**Adventure education.** There is a vast assortment of adventure education programs today. Examples include multiple day backpacking trips, rock climbing adventures, sea kayaking expeditions, and challenge courses. Common to all of them are a few key elements: a connection to nature, small groups of usually 16 or less, mental or physical challenge, a demand of interpersonal skills for problem solving, group decision making, and a novel setting (Hattie, Marsh, Niell, & Richards, 1997).

Research in the field of adventure education has been focused on program outcomes and, unfortunately, tends to read like advertisements, rather than empirical evidence. A meta-analysis conducted by Hattie, Marsh, Niell, and Richards (1997) found over 40 different outcomes from 151 studies in adventure education. They further grouped these outcomes into six main categories: academic, leadership, self-concept, personality, interpersonal skills, and adventuresome. They concluded from a high follow-up effect size (.51) that adventure education programs have a lasting effect on its participants regardless of which outcome. They also note that most studies look at one or two different outcomes, yet evidence from the meta-analysis show that many outcomes are experienced by participants. They concede that this is because of the complexity of studying multiple variables in quantitative research, which is more frequently used in adventure education then qualitative research.

Breunig, O'Connell, Todd, Young, Anderson, and Anderson (2008) recently looked at the psychological sense of community and group cohesion on a six-day wilderness adventure education program. Undergraduate students from a department of recreation and leisure studies program at a United States university ($n$ = 23) were asked to complete the Group Cohesion Evaluation Questionnaire (Glass & Benshoff, 2002) to self-report the group's cohesion. The significance of this study was that participants self reported increases in group cohesion and sense of community as a result of the experience from pre to post test. One limitation of this study was its inability to generalize findings to the diverse population of undergraduate students. Recreation students tend to have different attributes than the general student population (Weissinger, Caldwell & Mobily, 1992), which may have an impact on the willingness to participate in this type of activity and their cohesion. The research also fails to identify any specifics that may have led to the increase in group cohesion.

Sibthorp, Paisley, and Gookin (2007) sought out to understand the mechanisms which adventure education programs cultivate participant development. The study involved participants ($n$ = 663) from 66 NOLS courses and results showed that empowering participants to take responsibility for their own decisions led to feelings of greater learning and better interpersonal skills. They reported that a less autocratic leadership style was more effective. One general challenge with the study was the complexity of the instrument used and oversimplification of complex variables such as the interpersonal workings of the group.

**Challenge coures.** A growing trend within the adventure education field is the use of challenge courses (Attarian, 2001). Unlike most adventure education programs,

challenge courses can be constructed and utilized in a diverse range of environments, from inner-city school settings to camps in wilderness settings. This diversity makes challenge courses extremely accessible and is a contributing factor to their popularity (Attarian). Other attractions of a challenge course are that programs can be tailored to meet the specific needs of a group. In particular, with youth, a course aims to meet some of the developmental needs such as improving communication, leadership, trust, and teamwork (Moote & Wodarski, 1997; Rohnke, Rogers, Wall, & Tait, 2007). Also, challenge courses are relatively affordable, especially compared to a wilderness adventure program (Haras, Bunting & Witt, 2005). Even with the growing popularity of challenge courses and their advantages, several authors concede to the lack of research in the field (Martin, Cashel, Wagstaff, Breunig, 2006; Rohnke, et al., 2007).

Much of the research on challenge courses focuses on outcomes from the experience. Establishing outcomes is important to creating a foundation for which other research can build from. Goldenberg, Klenosky, O'Leary, and Templin (2000) looked at participants ($n$ = 125) from two challenge courses through means-end analysis. They identified relationships and connections among many outcomes, both empirically known and antidotally known. Teamwork emerged as a leading benefit which led to better communication, understanding of others and task accomplishment.

Gillis & Speelman (2008) examined the impacts of participation in challenge courses using a meta-analysis of 44 studies from 1986 to 2006 that. They categorized the outcomes into the following: self-esteem or self-concept, self-efficacy, personality measures, behavioral observations, academic measures, environmental, attitudes about physical condition, family, physical variable (weight), and group dynamics

(interpersonal, cohesion, effectiveness). Of the ten categories, three stood out; self-esteem or self concept (29.4 %), group dynamics (20.6%), and personal measures (14.7%). Most of these studies revealed positive outcomes. Gillis and Speelman (2008) concluded that, "…challenge course experiences are beneficial tools for participants." Other recent studies looked at communication outcomes during and after a one day challenge course program (Wolfe & Dattilo, 2006). Participants in Wolfe & Dattilo's study reported an improvement in communication throughout the day.

Their results, though positive make general difference. Design and delivery, two key components in the pursuit of outcomes, can and do vary from course to course (Haras, Bunting & Witt, 2005). Neill and Richards (1998) speculated design and delivery could be the most crucial factors in a program's effectiveness. Design refers to a broad list of attributes of a challenge course from the structural make-up to the sequencing of activities. Delivery, on the other hand, refers to the way in which elements are presented and the manner in which facilitators communicate and interact with participants.

Haras, Bunting and Witt (2005) conducted a means-end analysis examining two attributes of a challenge course, Challenge by Choice (CbC) and Optimum Participation (I-Opt) and their effects on proximal and distal outcomes. Adolescents ($n$ = 209) participated in a full day challenge course program that incorporated both low and high elements. Result showed variation in outcomes from the two attributes. This variation is justification for more research in the area design and delivery. Knowing what leads to outcomes is important if practitioners are going to try replicating a program's outcome.

One drawback with challenge course research is that studies refer to challenge courses as if they have a standard program. On the contrary, challenge courses are

dynamic and consist of many variables. Some research refers to half and full day programs as if they are the same for all courses (Hatch & McCarthy, 2005; Wolfe & Dattilo, 2006; Priest, 1996, 1998). Haras, Bunting & Witt's (2005) study referenced their programs as full-day programs, yet they varied from five and eight hours between groups. This lack of detail makes comparison of studies difficult. While some research looks at the entire experience as one event (Hatch & McCarthy, 2005; Wolfe & Dattilo, 2006; Priest, 1996, 1998), it seems prudent that examination of events making up the entire experience need further examination (Wolfe & Samdahl, 2005).

A study by Glass and Benshoff (2002) examines the elements of a challenge course that lead to outcomes. The outcome reviewed was group cohesion and the impacts from participation in a low-element challenge course. Adolescents ($n$ = 167) from an Eastern Carolina School District participated in a six and a half hour challenge course program. The Group Cohesion Evaluation Questionnaire was used to measure pre and post test levels of group cohesion. Statistically significant differences in mean scores from pre to pos-test (+4.35, $p$>.05) suggested that participants did perceive increased group cohesion as a result of participation in a low challenge course program. This is clearly a start for examining specific elements within a challenge course; however, it still lacks details that could be improved upon. First, though groups were randomly selected, they were from the same school. It would have been more beneficial if the authors could have grouped individuals from different schools to truly create a baseline to work from. Prior experiences, both positive and negative, could impact self reported scores on group cohesion. Second, there is a lack of detail of the actual

activities completed by the participants. This still leaves question as to what actually led to the increase in group cohesion.

One area of the challenge course that has received little research focus is the high elements (Rastall, 1997). What little research that has been conducted focuses on self-efficacy (Rohnke, et al., 2007; Martin, Cashel, Wagstaff, Breunig, 2006; Priest & Gass, 2005). Rastall (1997) examined two high elements in detail: the pamper pole and catwalk. Interviewed participants ($n$ = 32) reported a heightened self awareness and confidence along with anxiety and perceived risk. The study failed to examine the potential for other outcomes aside from self-efficacy, if any exist. Since groups and teams are primarily the clientele of a challenge course, exploring the impacts from high-elements on group cohesion seems sensible.

## Risk

**Real risk.** Risk is defined by Collinson, Panicucci, & Prouty (2007) as the "exposure to the possibility of some loss, including physical or emotional trauma" (p. 50). Essentially it is the likelihood of consequences. It is important to differentiate actual risk from perceived risk. Actual risk focuses on the real likelihood of a consequence or loss happening, whereas perceived risk focuses on peoples' perception of a potential loss. Project Adventure conducted a 20 year study on safety showing the actual injury rates of challenge courses versus other common industries (Priest & Gass, 2005; Furlong, Jillings, Larhette, & Ryan, 1995). Project Adventure program's injury rates were comparable to other industries like real estate, finance, and insurance, all of which had a rate of 4.5 accidents per million hours of activity. Educational services reported an accident rate of eight accidents per million and amusement parks at 19

accidents per million. Cooley (2000) found wilderness adventure experiences about 18 times less risky than high school football and cheerleading. As Priest & Gass (2005), point out everything in life is dangerous to some degree, but it appears, that like a challenge course actual risk is lower than others.

**Perceived risk.** Perceived risk is the reason for a person's uneasy feelings toward challenge courses. It "…involves a subjective perception of the potential for injury or death inherent in an activity" (Davis-Berman & Berman, 2002, p. 307). A person climbing a pole that is 15 to 20 feet off the ground being belayed by a class mate or stranger may have been told there was no risk, but the fears and anxieties are present. Whether or not the risk is real the participant's perception of risk is very real and can put them in danger of emotional or physical injury (Beedie, 1994).

**Influences of risk.** Davis-Berman & Berman (2002) explain that there are four sources of perception of risk; an individual's past experience, media presentations, vicarious experiences, and predisposition to anxiety.

Past experiences play an important role in how participants perceive risk. Someone who has had a traumatic experience involving heights will perceive a high-element challenge course differently then someone who grew up climbing trees. Media also plays a role as news coverage tends to exaggerate and twist stories to make them appear more controversial and exciting. This affects people's ability to "…make a valid assessment of the risks of various activities" (Davis-Berman & Berman, p. 308). In addition people are exposed to excessive amounts of media coverage during crises that can saturate a person's mind with fears and anxieties. Similar and related to media's role in perceived risks are vicarious experiences. Through exposure to media, a person can

gain compassion for a particular situation by vicariously living through the role of the observed. This enables the person to have feelings good and bad similar to that of the observed. Lastly, there is research to suggest that anxiety may be biologically predetermined. This is evident through the increased use of psychiatric medications that effectively treat anxieties. Davis-Berman and Berman (2002) state that, "This biological predisposition may or may not express itself based on social and environmental conditions. It might, however, lead an individual to view most situations as threatening or risky, subsequently leading to hyper-vigilant behavior" (p. 308).

As sports like rock climbing, whitewater rafting, hang gliding, and skydiving move closer on the spectrum to mainstream and socially acceptable sports, one has to question their influence on the novelty of challenge courses. Davis-Berman and Berman (2002) point out that media is one source of perceived risk. People now have unlimited access to significant amounts of video of much riskier activities than ropes courses. In a recent search on youtube.com, 326,000 videos of climbing were found. Arguably, some might agree that rock climbing does not carry the same amount of risk as newer more novel sports like B.A.S.E. jumping. Attarian (2001) acknowledged that participation in adventure programs has grown significantly in previous years and there are few indicators to show this will slow down. As this risk recreation increases, what influence will that have on the design and delivery of challenge courses and the implementation of perceived risk?

**Questioning the benefits of risk taking.** Several authors have questioned the benefits of manipulating perceived risk to guide outcomes (Beedie, 1994; Davis-Berman & Berman, 2002; Estrellas, 1996; Wolfe & Samdahl, 2005). The manipulation of risk

may actually hinder the growth of an individual or development of a team when the risk is too great (Estrellas, 1996), causing high levels of stress which may impact negatively on both the individual and group. Beedie (1994) asks, "Is it the successful outcome of taking risk which is important or is it enough to undergo the process of risk taking?" (p. 14). This view aligns with the feminist perspective suggesting that simply enrolling in an adventure program represents leaving of one's comfort zone and that any encouragement of more risk taking may be harmful (Estrellas, 1996). Estrellas also stated, "To purposefully create stressful situations as a companion to risk taking blatantly fosters an environment of negative outcomes" (p. 34). Maslow's (1954) hierarchy of human needs supports this type of thinking as well since love and security must be met before self actualization can be achieved.

Wolfe & Samdahl (2005) provided some specific examples to question if "it is beneficial to encourage a juvenile delinquent to engage in more risky behavior" (p. 28) or if "risk-taking is a good trait for corporate executives in charge of large sums of other people's money?" (p. 28) Though Wolfe & Samdahl's examples are on the extreme side they certainly raise good question as to if encouraging risk-taking is good for all situations.

Most definitions of risk focus on the negative effects or losses as a result of the risk taken. This leaves the question lingering, if all we are chancing is loss then what is to gain? Research on positive outcomes with challenge courses has been abundant (Goldenberg, et. al., 2000; Haras, et al., 2005). Clearly, there is support that positive outcomes are produced by participation in challenge courses. What is lacking, as Wolfe & Samdahl (2005) pointed out is empirical evidence behind common assumptions that

risk and challenge lead to positive outcomes. Also, Gillis and Speelman (2008) noted the lack of empirical research on the process leading to outcomes in a challenge course setting. Though there has been an increase in recent research to show the process leading to outcomes (Haras & Bunting, 2005), past research lacks information regarding the methodologies used to show impacts, such as details concerning the types and length of programs. This lack of detail will make it difficult to link past research to present findings.

**Past research.** Priest conducted several studies (1993, 1995, 1996, 1998) with adventure education and risk. One study looked at the changes in perceived risk and competence during adventure experiences (1993). One hundred university students were asked to participate in an adventurous experience of their choice. Students completed the Dimensions of an Adventure Experience questionnaire, and kept journals to track their experience. Results concluded that the students changed their perception of risk and competence to deal with that risk as a result of involvement. This implies that growth and learning take place as a result of experience. The study failed to identify what types of adventurous experiences lead to this change.

Several other studies from Priest (1995, 1996, 1998) examined corporate adventure training programs and their impact on communication outcomes. Two of the three studies examined challenge courses role, while the other study looked at a rock climbing program. All three studies identified that perceived risk had a profound effect on the outcome of communication. Participants felt the heightened importance of better communication as a result of the anxieties created by the adventurous challenge before them.

Stokes (1983) found that greater cohesion can be achieved by risk taking and that groups who take the most risk will tend to have the greatest cohesion. Stokes was referring to the risk of intimate self –disclosure and expressions of a group member. His work does raise the question whether physical risk taking could also lead groups to great cohesion.

Both Wolfe and Samdahl (2005) and Gillis and Speelman (2008) call for more empirical research in risk and its assumptions to help further identify the positive and negative sides of putting people in a perceived risk situation

## Group Cohesion

**Defining cohesion.** Cohesion has been identified by many researchers as the most important small group variable and is instrumental in the success of a group or team (Goldembiewski, Hilles, & Kangoo, 1974; Murray, 1981; Hall, 1985; Evans & Jarvis, 1980). There exists some controversy among researchers regarding the definition of group cohesion (Cota, Dion, & Evans, 1993; Glass 1999; Enoch & McLemore, 1967). Central to this dispute is the structure of group cohesion. Some believe cohesion is based on interpersonal communication within the group (Festinger, Schachter, & Back, 1950), or the task performance of the group (Bakeman & Helmreich, 1975), while others believe it is the intra-group pressure for uniformity (Festinger, Gerard, Hyomivitch, Kelley, & Raven, 1952). While all of these may hold some validity, Carron, Brawley, and Widmeyer's (1985) conceptual framework accounts for many of other model's gaps. For the purposes of this study Carron, Brawley, and Widmeyer's definition of group cohesion was used: "the dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of its goals and objectives and/or for the

satisfaction of member needs" (p. 246). This definition of cohesion indicates its multidimensional nature. Both task and social orientations from an individual and group effectively construct group cohesion (Carron, 1988).

**Conceptual framework.** Carron, Brawley, and Widmeyer's (1985) conceptual model of group cohesion outlines two main attributes, group integration and individual attractions to the group. Within each of these two attributes exists a social and task relationship. Overall, the model has four main components; Group Integration-Task (GI-T), Group Integration-Social (GI-S), Interpersonal Attraction to the Group-Task (ATG-T), and Interpersonal Attraction to the Group-Social (ATG-S). Each attribute helps contribute to the overall cohesion of the group.

***Group Integration-Task.*** This attribute of the model refers to the feelings of the group as a whole regarding closeness, similarity, and connection to the group's task. Essentially the group feels united to reach a goal or performance (Carron, et. al., 1985).

***Group Integration-Social.*** This attribute refers to the feelings of the group as a whole regarding closeness, similarity, and connection as a social unit. The group is bonded from a social aspect and feels connections because of the group's relationships (Carron, et al., 1985).

***Interpersonal Attraction to the Group-Task.*** In this attribute, the model refers to the feelings about an individual's involvement with the group goals or objectives. Members of the group individually may or may not like the way goals are being achieved, thus having an impact on the group's cohesiveness (Carron, et al., 1985).

***Interpersonal Attraction to the Group-Social.*** This refers to individual group member's feelings about their acceptance and social interaction with the group.

Members may consider other group members as close friends or may feel that social relationships could exist outside the group (Carron, et al., 1985).

**Group development.** Now that the conceptual framework of group cohesion has been examined, it is important to recognize how group cohesion develops. Tuckman and Jensen (1977) established a model that serves as the foundation for most other models (Priest & Gass, 2005). Their model highlights several stages of development a group passes through to become cohesive. Though groups will vary in the duration of time spent at each stage, the sequence of the stages are consistent in the development of most groups. Tuckman and Jensen's (1977) stages of group development are forming, storming, norming, performing, and adjourning. Each stage is outlined and described below.

***Forming.*** During this stage of a group's development, members usually feel the natural unease and discomfort of being part of a new group. The group is typically concerned with getting to know each other. Groups in this stage usually need guidance and support (Tuckman & Jensen, 1977).

***Storming.*** In the storming stage, groups experience resistance to control, question authority, and have conflict between group members. Priest and Gass (2005) state this is where the "Pecking order" is established. Here is also when groups start to meet the demands of the group. Trust can be increased or decreased during this stage as a result of how the group handles conflict. It is critical for groups to progress to have clear and open communication amongst the group or team (Tuckman & Jensen, 1977).

***Norming.*** At this stage, conflict is replaced with collaboration. The group starts to address appropriate behaviors and norms to follow. This is where they may feel the

first signs of cohesion. Also, the group starts to focus more on the task (Tuckman & Jensen, 1977).

***Performing.*** During this stage the group *is* focused on the task. All efforts are for the greater good of the team. Clear goals and a working order to achieve those goals are followed. Also, group members mutually support each other in their pursuit of these goals (Tuckman & Jensen, 1977).

***Adjourning.*** This last stage brings closure to the task. Groups tend to celebrate their progress and reflect back on the experiences. Sometimes members feel anxiety during this stage as they must now take what has been learned to a new group or setting (Tuckman & Jensen, 1977).

Tuckman and Jensen's (1977) Stages of Development help identify the succession a group goes through to experience cohesion. Bisson (1997) tested this model with an adventure-based training program. The result showed that the model was effective in developing team cohesion in an adventure setting. Priest (1998) found similar result that supported Bisson's work. These studies are important because they start to further investigate what leads to group cohesion. They are also important because the results from these studies will help identify the sequence of activities for this study. Both studies however fail to if show if perceived risk, a common element of adventure programs, has an impact on the cohesion of the group.

**Summary**

For years, challenge course practitioners have programmed elements of the course around many assumptions and anecdotally proclaimed their benefits (Wolfe & Samdahl, 2005). Central to these assumptions is the role of perceived risk. This review exposes

the lack research studies that exist to help support the practice of putting participants in a perceived risk situation at a challenge course.

Research does show challenge courses produce positive outcomes (Goldenberg, et al., 2000). This review demonstrates the lack of research dealing with specific events that have led to these positive outcomes. Most studies reviewed fail to clearly outline what activities were performed and for how long the participants engaged in the course. This information is particularly important when trying to replicate and build upon existing research.

Attarian (2001) clearly states that the use of challenge courses as a form of adventure education is continuing to grow. With this increase in demand comes the need for researchers and practitioners to continually investigate the intricate workings leading to outcomes.

This review of literature provides a foundation upon which this study will be built. It explores the gaps with challenge course research. It is this lack of research that indicates how helpful this study will potentially be to practitioners and researchers in designing to meet the needs of challenge course programs.

# CHAPTER 3

# Methodology

## Participants

Subjects for this study were recruited from a First Year Experience cohort at a large State University located in Central California. The cohort was comprised of one-hundred ($n$ = 100) first generation freshman who had not attended college before. Their acceptance into the cohort was based on several factors which include grade point average and standardized testing scores. Students in the cohort were required to do some sort of remediation due to lower rather than higher grades and scores. They were selected from throughout California and the process attempted to represent a wide range of ethnicities. In addition, the selection process attempted to achieve a balance of males and females and ages ranged from 17 to 19 years old. Candidates for this cohort were selected at the end of June, prior to the start of the fall semester.

The reason for selecting freshman in this cohort was to attempt to control how long they had known each other, which may have impact cohesiveness. It is possible students from this cohort will know others in the cohort prior to first getting together, but it is unlikely because the selection was made from the entire state of California. Random selection was used to divide the cohort into six groups of 12 to 17 students. Walsh and Golins (1976) recommend this size of group when trying to work on group development. The goal is for the group to be big enough to create a wealth of diversity, yet small enough to support each participant's individual goals. This also helped reduce the chance of students knowing each other prior to the course. In addition, the challenge course

experience was conducted prior to the semester beginning to help avoid students from connecting through classroom and other school experiences.

Data from students within these groups that had participated in a challenge course experience within the last two years was not used for the purposes of this study. The reason for this was to reduce the impact that another course may have on this experience. This helped level the group's experience with challenge courses. In the rare event that a majority of the participants had challenge course experience, the study then would include all participants with and without challenge course experience and offer this as an additional limitation.

Participants had the option of not participating in the study. Should they have chosen not to participate in the study, yet still wanted to participate in the activities, they would have been allowed. If a group had more than 25% of its participants opting out of the study, then the data collected for that group would not have been used in this study. They would have been allowed to participate in an effort to avoid any impact those choosing not to participate in the study may have had on the overall cohesiveness of the team. In addition, participants were given an informed consent and waiver (see Appendices A and B) with their orientation paper work to the cohort. These packets were mailed out at least three weeks prior to the beginning of the semester. Extra copies of the informed consent and waiver were available during their orientation meeting prior to the challenge course experience.

Participants were assigned an identification number at the beginning of each course when they turned in the Informed Consent. The identification numbers were recorded on the Informed Consent and each questionnaire to follow their progress

throughout the experience. Only the principal investigator had access to the identity of each identification number and all forms were locked in a file cabinet in the principal investigators office.

***Participant Results.*** Of the one-hundred participants in the cohort only eighty-six ($n$ = 86) participated in the study for all three tests. Several reasons account for this difference. Some students did not attend the cohort orientation and missed details leading to when and where to report for the ropes course experience. Others include normal attrition of students failing to show up to class, while others failed to complete one or more tests during the experience (pretest, midtest, or posttest).

The cohort was divided into six groups varying between twelve and seventeen people (see Table 1). Groups one, two, and three participated in a low element only challenge course and had a total of forty-four total participants ($n$ = 44). Groups four, five, and six participated in a combination of low and high elements and had forty-two participants ($n$ = 42).

Overall the cohort had an unbalanced proportion of males to females, with thirty-three percent ($n$ = 29) being male and sixty-six percent being female ($n$ = 57). The majority of participants were eighteen years old ($n$ = 65), three were nineteen, and the remaining ($n$ = 18) were seventeen years of age.

Three race/ethnicities groups emerged as the majority of the sample. Latino, Latin American, Puerto Rican, Mexican American, Chicano, or other Hispanic was the prominent group with forty-three percent of the population ($n$ = 37). Caucasian was the next largest group with twenty-one percent ($n$ = 18) and African American or Black was fifteen percent of the population ($n$ = 13).

Table 1
First Year Experience Cohort Frequency and Percentage

| Group | *f* | % |
|---|---|---|
| Group 1 | 15 | 17.44 |
| Group 2 | 12 | 13.95 |
| Group 3 | 17 | 19.77 |
| Group 4 | 13 | 15.12 |
| Group 5 | 12 | 13.95 |
| Group 6 | 17 | 19.77 |
| Total | 86 | 100.00 |
| **Course Type** | *f* | % |
| Low Element Only Course | 44 | 51.16 |
| Low and High Element Course | 42 | 48.84 |
| Total | 86 | 100.00 |
| **Sex** | *f* | % |
| Male | 29 | 33.72 |
| Female | 57 | 66.28 |
| Total | 86 | 100.00 |
| **Age** | *f* | % |
| 17 | 18 | 20.93 |
| 18 | 65 | 75.58 |
| 19 | 3 | 3.49 |
| Total | 86 | 100.00 |
| **Race/Ethnicity** | *f* | % |
| African American or Black | 13 | 15.12 |
| Asian American/Asian/Indian | 5 | 5.81 |
| Latino, Latin American, Puerto Rican, Mexican American, Chicano, or other Hispanic | 37 | 43.02 |
| SE Asian American/SE Asian | 2 | 2.33 |
| Pacific Islander, Filipino | 3 | 3.49 |
| Caucasian | 18 | 20.93 |
| Native American/Alaskan | 1 | 1.16 |
| Other | 7 | 8.14 |
| Total | 86 | 100.00 |

**Instrument**

Group cohesion was selected as the dependent variable in this study for several reasons. First and foremost, it is a common goal of challenge course programs (Glass & Benshoff, 2002). Second, past research has looked at the impacts of other aspects on the course in relation to the group cohesion (Hatch & McCarthy, 2005; Glass & Benshoff, 2002; Meyer, 2000). Lastly, group cohesion is an important aspect to First Year Experience Programs (Bai & Pan, 2009), such as the cohort used in this study.

Group Cohesion in this study will be measured with the Group Cohesion Evaluation Questionnaire (GCEQ). This questionnaire was developed by Glass and Benshoff (2002) due to the lack of instruments available that were simple, easy to understand, and could be used with youth. The foundation of this questionnaire was established from several other instruments; Group Attitude Scale (Evans & Jarvis, 1980), Self-Report Family Inventory (Beavers, Hampson, & Hulgus, 1985), Family Strengths Scale (Olson et al., 1985), Family Well-Being Assessmen (Caldwell, 1988), Family Adaptation Scale (Antonovsky & Sourani, 1988), and the Family Relations Effectiveness Scale (Imig, 1981). Currently, few studies within the field of Adventure Education have used the instrument (Breunig, O'Connell, Todd, Young, Anderson, & Anderson, 2008; Glass & Benshoff, 2002). Both studies were examined in chapter two of this thesis.

The instrument is made up of nine items designed to assess how well a group works together. Participants score those nine questions based on a Likert-type scale rating from 4 (Like me/my group) to 1 (Not like me/my group). Questions asked address the interpersonal and intrapersonal workings of the group. A panel of seven experts, all with an average of six or more years of experience facilitating challenge courses, was

assembled to refine and select the final questions for the questionnaire. Glass and Benshoff performed a factor analysis that confirmed a single factor existed among the nine items. Also, reliability of the GCEQ was confirmed to be .91 using Cronbach's coefficient alpha. This helps support that the instrument will measure what it is designed to measure. In this study, the Cronbach's coefficient alpha, for the questionnaire was .88; which is similar to that of the authors of the GCEQ.

In addition to questions relating to group cohesion, this instrument was adapted to include questions regarding demographics, perceived risk, and whether the outcomes were positive. Demographic questions have been used in the previous studies (Breunig, O'Connell, Todd, Young, Anderson, & Anderson, 2008; Glass & Benshoff, 2002); however, the format and wording were aligned with State University language for consistency. Specifically, participants were asked age, sex, and their ethnicity (see Appendix C).

Questions dealing with perceived risk were adapted to this questionnaire because no instrument could be located that measured both group cohesion and perceived risk. Questions asked the participant about previous and upcoming challenges in relation to risk (see Appendix C, D, and E). These three questions were referred to as the 3 item perception of risk scale. The questions were reviewed by three challenge course facilitators averaging over eight years of experience to ensure clarity and appropriateness.

This 3 item perception of risk scale was tested for reliability using Cronbach's coefficient alpha. Cronbach's alpha coefficient at pretest showed low reliability, ($\alpha$ = .52). Mid-test ($\alpha$ = .72) and post-test ($\alpha$ = .78) showed higher and more acceptable

reliability, however it is difficult to conclude the test is reliable because of the results of the pretest.

The group cohesion portion of the questionnaire was scored by using a scoring sheet. This simply adds up the results of each of the first nine questions. A perfect score, implying maximum group cohesiveness would reflect a score of 36, while the lowest score would reflect a score of nine. These total scores were then compared with the groups' scores. The remaining questions were also scored and compared individually using the same scoring sheet.

**Procedures**

This study was conducted at a large State University's challenge course located in Central California. The challenge course at this site has both low and high elements and typically performs programs that incorporate both.

Groups were not to know what elements other groups were participating during the study. Courses were conducted on different days and times to ensure this. All groups participated in the same series of activities up to the mid-test. Groups participating in high elements performed the same high elements and groups performing in the second series of low elements performed the same low elements. A list of activities for each series is detailed in Appendix F.

Past research conducted with challenge courses has varied in program length, with three hours being the minimum and 48 hours being the maximum. Gillis and Speelman's (2008) Meta-analysis found that eight of 44 (18.2%) studies reviewed had program lengths of less than five hours. In their Meta-analysis this represented the most studies and thus was one deciding factor for the selection of length of program for this study.

Another factor in the selection process was the current average length of program for the facility being used and the availability of the cohort. These factors led to the selection of a three and a half hour challenge course program.

Several studies that have researched challenge courses have used some form of pre-test and post-test assessment (Hatch & McCarthy, 2005; Gillis & Speelman, 2008; Glass & Benshoff, 2002) For this study a pre-test was administered as the baseline. This was given after groups were divided into teams and one name game was performed. This was designed to give the participants a basis of who was in their group. A mid-test was administered after a series of low elements and initiatives (after an hour and forty five minutes). Half the teams progressed to the high element portion of the course, while the other half of groups continued with low elements initiatives. A post-test was administered at the end of each course, but prior to the closing remarks. All questionnaires were administered by the principal investigator and were collected at the end of the course. Participants were not allowed to review previous scores on questionnaires. The principal investigator did not facilitate or participate in any other aspects of the challenge course.

In addition the principal investigator included an observational component to the research. This observation will included an overall assessment of the groups and individual success. It also included information about the weather and condition of course.

Head Facilitators had at least 3 years of facilitating experience. They were provided with scripts to follow for introducing activities. All facilitators used a challenge by choice philosophy, which allows participants to choose their level of participation

(Rohnke, Rogers, Wall, & Tait, 2007). An orientation meeting was conducted prior to the courses, which informed the facilitators on the series of activities to take place and time schedule, how to handle questions regarding the study, and what the principal investigator's role will be during each course.

**Data Analysis**

Questionnaire booklets were collected immediately following the course and were entered into SPSS by the principal investigator. See Table 1 for means and standard deviations for each variable and demographic. A One-way ANOVA was used to justify the grouping of all low element groups together and all high element groups together (Vincent, 1999). This was completed from both a group cohesion and perception of risk viewpoint. These groups were also assessed for homogeneity using the *Levine* statistic and Tukey HSD was performed for significant differences and Post Hoc testing.

A One-way ANOVA will then examine the interaction of the independent variable on the dependent variable (Vincent, 1999) of each hypothesis question. Significance was evaluated at the alpha level of .05 ($p<.05$). If significance was found, then Welch statistic was reported. Effect size was calculated using Eta squared ($\eta^2$). This helped describe the meaningfulness of the impact the independent variable had on the dependent variable.

# CHAPTER 4

## Results

In this chapter, the results of the study are presented. Two distinct areas will make up this section: the preliminary statistics used to create groups together for analysis, and the statistics directly relating to answering the hypothesis questions in the study.

### Preliminary Statistics

Before testing the research hypothesis, preliminary statistics were required to allow and justify the group of participant data. That is, a series of separate one-way ANOVA analyses were conducted to ensure there were no significant differences between participants in the low element course groups, so that their scores could be combined to make a single group for comparison with participants in the high element course groups. Similar ANOVA analyses were conducted for the high element course groups.

The first preliminary analysis used to merge all of the low element groups data together was a one-way ANOVA where the independent variable was low element course groups and the dependent variable was the pretest GCEQ (i.e., group cohesion) scores. See Table 2 for descriptive statistics and ANOVA results. The results indicate the three low element group scores are homogeneous, *Levine* (2, 41) = 0.01, $p = .99$. Significant differences between the low element course groups' cohesion scores were found, $F$ (2, 41) = 8.34, $p = .001$. Tukey HSD post hoc test revealed that the low elements course group 1 had significant greater group cohesion at pretest ($M = 29.13$, $SD = 4.21$) than low elements course group 3 ($M = 22.65$, $SD = 4.94$).

Table 2

Descriptive Statistics and One-way ANOVA Results for Preliminarily Analysis of Cohesion

| Course Type (IV) | Group | *n* | *M* | *SD* | *F* | *Df* | *p* |
|---|---|---|---|---|---|---|---|
| Low Course | | | | | | | |
| | 1 | 15 | 29.13 | 4.21 | | | |
| | 2 | 12 | 26.50 | 4.27 | | | |
| | 3 | 17 | 22.65 | 4.94 | | | |
| | Total | 44 | 25.91 | 5.24 | 8.34* | 2, 41 | .00* |
| High Course | | | | | | | |
| | 4 | 13 | 22.61 | 4.01 | | | |
| | 5 | 12 | 27.08 | 5.14 | | | |
| | 6 | 17 | 23.41 | 4.40 | | | |
| | Total | 42 | 24.21 | 4.78 | 3.51* | 2, 39 | .04* |

* Significant at $p < .05$

The next preliminary analysis used to combine high element groups 4, 5, and 6 into one group based on their GCEQ results from the pretest was a one-way ANOVA where the independent variable was high element course groups and the dependent variable was pretest GCEQ scores. See Table 2 for descriptive statistics and ANOVA results. The results indicated the three high element groups scores are homogeneous, *Levine* (2, 39) = 0.51, $p > .05$. Significant differences between the high element course groups' cohesion scores were found, *(F* (2, 39) = 3.51, $p < .05$. Tukey HSD post hoc test revealed that the high element group 4 had significantly greater group cohesion at pretest ($M = 22.62$, $SD = 4.01$) than high element group 5 ($M = 27.08$, $SD = 5.41$). It is possible

that a simple name game prior to the pretest could have had an effect on these results. Other possible reasoning for this difference will be explained in the preceding chapter.

The third preliminary statistic was to merge low element groups (group 1, 2, and 3) together by the three item perception of risk scale scores at pretest. A one-way ANOVA was used, where the independent variable was the low element course group and the dependent variable was the pretest three item perception of risk scale scores. See Table 3 for descriptive statistics and ANOVA results. The results indicated the three low element groups scores are homogeneous, *Levine* (2, 41) = 0.32, $p > .05$. No significant differences exist between groups $F$ (2, 41) = 0.19, $p = .83$.

Table 3
Descriptive Statistics and One-way ANOVA Results for Preliminarily Analysis of Perceived Risk

| Group Type | Group | *n* | *M* | *SD* | *F* | *df* | *p* |
|---|---|---|---|---|---|---|---|
| Low Course | | | | | | | |
| | 1 | 15 | 5.73 | 1.94 | | | |
| | 2 | 12 | 5.42 | 1.44 | | | |
| | 3 | 17 | 5.82 | 1.88 | | | |
| | Total | 44 | 5.68 | 1.76 | 0.19 | 2, 41 | 0.83 |
| High Course | | | | | | | |
| | 4 | 13 | 6.38 | 1.80 | | | |
| | 5 | 12 | 8.08 | 2.31 | | | |
| | 6 | 17 | 7.06 | 2.28 | | | |
| | Total | 42 | 7.14 | 2.20 | 1.96 | 2, 39 | 0.51 |

The last preliminary statistic looked to combine all high element groups (group 4, 5, and 6) together by the three item pretest perception of risk scale scores at pretest. A one-way ANOVA was used, where the independent variable was the high element groups and the dependent variable was the three item perception of risk scale at pretest. See Table 3 for descriptive statistics and ANOVA results. The results indicated the three high element groups scores are homogeneous, *Levine* (2, 39) = 0.69, $p > .05$. No significant differences exist between groups $F$ (2, 39) = 1.96, $p = .15$.

As a result of these preliminary statistics the decision was made to establish four groups; low element participants by group cohesion, high element participants by group cohesion, low element participants by perception of risk, and high element participants by perception of risk. These groups will be used to establish the results of each hypothesis outlined in earlier chapters.

**Study Results**

This study set out to explore four hypothesis concerning perception of risk, group cohesion, and outcomes of a low and high element challenge course. The results revealed a number of interesting findings.

The first hypothesis states that high elements will self-report higher levels of perceived risk than low elements at pretest, mid-test, and post-test. The independent variable is low element groups and high element groups and the dependent variable is perception of risk. Table 4 shows the descriptive statistics for each of these variables. A one-way ANOVA was performed. Results find the groups are homogeneous at pre-test *Levine* (1, 84) = 3.68, $P > .05$, at mid-test *Levine* (1, 84) = 0.08, $P > .05$, and at post-test *Levine* (1, 84) = 0.25, $P > .05$. A significant difference exists at pretest between

level of perceived risk and type of program $F$ (1, 84) = 11.58, $p$ = .00. Also, a significant difference exists at mid-test between level of perceived risk and type of program $F$ (1, 84) = 16.85, $p$ = .00. Lastly, a significant difference exists at post-test between level of perceived risk and type of program $F$ (1, 84) = 11.51, $p$ = .00. Tukey HSD post hoc test revealed that the high element groups had significantly greater perception of risk at pretest ($M$ = 7.14, $SD$ = 2.20), mid-test ($M$ = 7.40, $SD$ = 2.15), and post-test ($M$ = 7.69, $SD$ = 2.40) than low element groups. Therefore we accept the alternative hypothesis, high elements self report higher levels of perceived risk than low elements.

Table 4
Descriptive Statistics and One-way ANOVA Results for Hypothesis One

| Perception of Risk | Course Type (IV) | *n* | *M* | *SD* | *F* | *df* | *p* |
|---|---|---|---|---|---|---|---|
| Pretest | | | | | | | |
| | Low Course | 44 | 5.68 | 1.76 | | | |
| | High Course | 42 | 7.14 | 2.20 | | | |
| | Total | 86 | 6.40 | 2.11 | 11.58* | 1, 84 | .00* |
| Mid-test | | | | | | | |
| | Low Course | 44 | 5.41 | 2.35 | | | |
| | High Course | 42 | 7.40 | 2.15 | | | |
| | Total | 86 | 6.38 | 2.46 | 16.85* | 1, 84 | .00* |
| Post-test | | | | | | | |
| | Low Course | 44 | 5.82 | 2.70 | | | |
| | High Course | 42 | 7.69 | 2.40 | | | |
| | Total | 86 | 6.73 | 2.71 | 11.52* | 1, 84 | .00* |

* Significant at $p <$. 05

The second hypothesis in this study stated those who experience higher levels of perceived risk from participation in high elements will self report higher levels in group cohesion. Again, a one-way ANOVA was performed where the independent variable used was the perception of risk and the dependent variable was group cohesion. See Table 5 for descriptive statistics and ANOVA results. Test results indicated groups are homogenous test $Levine$ (1, 40) = 0.01, $P > .05$. No significant differences were found between group cohesion and perception of risk $F$ (1, 40) = 0.81, $p$ = .81, $\eta^2$ = .14. As a result, there was not support found for the alternative hypothesis; those who experience higher levels of perceived risk from high elements do not self report higher levels in group cohesion.

Table 5
Descriptive Statistics and One-way ANOVA Results for Hypothesis Two

| | Group Type (IV) | *n* | *M* | *SD* | *F* | *df* | *p* | *η* |
|---|---|---|---|---|---|---|---|---|
| Cohesion | | | | | | | | |
| | Low Perception of Risk | 8 | 89.13 | 9.03 | | | | |
| | High Perception of Risk | 34 | 92.15 | 8.43 | | | | |
| | Total | 42 | 91.57 | 8.52 | 0.81 | 1, 40 | 0.37 | .14* |

* Eta shows moderate effect.

The third hypothesis states participation in high element challenge course will produce higher levels of group cohesion than low element challenge course. A one-way ANOVA was performed where the independent variables are the groups participating in a

low element challenge course and a high element challenge course and the dependent variable is the level of group cohesion at pretest, mid-test, and post-test. See Table 6 for descriptive statistics and ANOVA results. At pretest, groups were found to be homogeneous $Levine$ (1, 84) = 0.00, $P$ = .98. At mid-test, groups were not homogeneous $Levine$ (1, 84) = 14.45, $P$ = .00. At post-test, groups were found to be homogeneous $Levine$ (1, 84) = 3.98, $P$ = .05. No significant differences exist between pretest $F$ (1, 84) = 2.45, $p$ = .12 and post-test $F$ (1, 84) = 2.74, $p$ = .10. There is a significant difference at mid-test Welch (1, 68) = 12.15, $p$ = .00. There is a lack of support for the alternative hypothesis; there is no difference in cohesion between low and high element groups.

Table 6
Descriptive Statistics and One-way ANOVA Results for Hypothesis Three

| Cohesion | Group Type (IV) | *n* | *M* | *SD* | *F* | *Welch* | *df* | *p* |
|---|---|---|---|---|---|---|---|---|
| Pretest | | | | | | | | |
| | Low Course | 44 | 25.91 | 5.24 | | | | |
| | High Course | 42 | 24.21 | 4.78 | | | | |
| | Total | 86 | 25.08 | 5.06 | 2.45 | | 1, 84 | 0.12 |
| Mid-test | | | | | | | | |
| | Low Course | 44 | 34.91 | 1.95 | | | | |
| | High Course | 42 | 32.95 | 3.1 | | | | |
| | Total | 86 | 33.95 | 2.74 | | 12.15* | 1, 68 | .00* |
| Post-test | | | | | | | | |
| | Low Course | 44 | 35.27 | 2.21 | | | | |
| | High Course | 42 | 34.40 | 2.64 | | | | |
| | Total | 86 | 34.85 | 2.46 | 2.74 | | 1, 84 | 0.1 |

* Significant at $p < .05$

The last hypothesis states high element participants experiencing higher levels of perceived risk will self-report the outcomes from the experience are positive. Participants from high element groups ($n = 34$) had a mean of 3.89 on a scale of 1 to 4 and a standard deviation of .33. It's safe to conclude that high element participants feel the outcomes are positive. To further look into this a one-way ANOVA was performed

to compare the independent variable of low or high perception of risk to the dependent variable of outcomes of the experience. See Table 7 for descriptive statistics and one-way ANOVA results. Results found groups were not homogeneous $Levine$ (1, 40) = 8.10, $P$ = .01. No significant difference was found between high and low levels of perceived risk on positive outcomes $F$ (1, 40) = 3.18, $p$ = .08). This shows support that perceptions of risk do not impact the participant's perception of positive outcomes.

Table 7
Descriptive Statistics and One-way ANOVA Results for Hypothesis four

| | Group Type (IV) | *n* | *M* | *SD* | *F* | *df* | *p* |
|---|---|---|---|---|---|---|---|
| Positive Outcome | | | | | | | |
| | Low Perception of Risk | 8 | 3.63 | 0.52 | | | |
| | High Perception of Risk | 34 | 3.88 | 0.33 | | | |
| | Total | 42 | 3.83 | 0.38 | 3.18 | 1, 40 | 0.08 |

The results found for the preliminary analyses and analyses of the hypotheses will be discussed further in Chapter 5. Included in this discussion are the possible reasons for the outcomes of each analysis.

# CHAPTER 5

## Conclusions and Recommendations

The purpose of this study was to assess the impact of perceived risk from high elements in a challenge course on group cohesion. This final chapter reviews the significance of this research, the methods used to assess, and the results achieved. The chapter also looks to discuss and interpret these results and make connections to previous literature. Lastly, limitations and recommendations for future research will be implicated.

### Summary

***Significance.*** Challenge courses are a wildly used and accepted form of adventure education. This type of education purposefully manipulates activities to guide participants toward certain outcomes (Luckner & Nadler, 1997). While many outcomes such as improved self-efficacy, enhanced communication skills, better trust, and increased group cohesion have been researched through challenge courses (Goldenberg, Klenosky, O'Leary, & Templin, 2000), gaps still remain in processes and specifics that lead to these outcomes. One area that lacks support from research is the role of perceived risk on some of these outcomes, more specifically group cohesion.

Wolfe and Samdahl (2005) question the appropriateness of purposely putting participants in a perceived risk situation in hopes of guiding them toward a predetermined outcome. Their belief has traction because of the lack of empirical evidence available. This study explored the relationship of perception of risk on group cohesion in an effort to better understand how participants arrive at these outcomes and to address Wolfe and Samdahl's concerns stated above.

In addition this study attempted to provide evidence to support the use of high elements for reasons other than self-efficacy. Since high elements are a part of many adventure programs this could provoke future research other than in self-efficacy. Lastly, this study could use the findings to assist in programming for group cohesion outcomes.

***Methods.*** Eighty-six freshmen from a First Year Experience cohort at a large State University located in Central California were asked to participate in a challenge course program as part of their orientation. The cohort was divided randomly into six groups ranging from 12 to 17 students. Measures were taken to ensure students had no previous experience with challenge courses. The three and a half hour challenge courses took place prior to the semester beginning to help limit students from connecting through classroom and other school experiences.

Participants were administered a Group Cohesion Evaluation Questionnaire (GCEQ) with perception of risk questions and outcome questions added at pretest, mid-test, and post test. All the groups participated in the same sequence of low element activities up to the mid-test. At mid-test half the groups continued to participate in low elements, while the other half of groups participated in a series of high elements. This was done in an effort to manipulate the perception of risk of the participants. All groups completed the post-test after concluding their respective challenges.

***Results.*** One-way ANOVA at alpha level of .05 was used to find significant differences among groups. Preliminary analysis was conducted prior to grouping groups together. The first preliminary analysis of grouping low element groups together based on pre-test cohesion scores revealed significant difference among groups one and three. The same held true for grouping high elements groups together based on pre-test

cohesion scores for groups four and five. Possible reasons for these differences will be discussed in the discussion section of this chapter.

Preliminary analysis of grouping all low element groups together and all high element groups together based on perception of risk exposed no significant differences making the decision to combine groups unproblematic.

Cronbach's test of reliability was performed on the GCEQ. This was done to compare the authors of the questionnaire to the results in this study. Results indicated similar reliability ($\alpha = .88$). Additional questions added to the questionnaire were also tested for reliability and results indicated low reliability at pretest ($\alpha = .52$), but moderate reliability at mid-test ($\alpha = .72$) and post-test($\alpha = .78$).

Study results indicated that participants feel an increased perception of risk as a result of participation in high elements ($p = .00$). That increased perception of risk, however, did not lead to higher levels of group cohesion. Also, no differences were found in cohesion between low and high elements. Lastly, perceived risk, whether low or high, did not impact the participant's perception of positive outcomes, both scored extremely high on a scale of one to four.

**Discussion and Conclusions**

This section of the study will interpret the results, explain potential reasoning for these results and make connections to previous literature. The section will also conclude with a reflection on limitations to the study.

***Preliminary Analysis.*** Prior to examining the study results it is necessary to discuss the preliminary analysis. These preliminary analyses provided the fundamental reasoning for grouping certain groups together.

It was believed that all groups whether it was low or high element groups, would have similar pretest scores when examining cohesion. This made sense because they all went through a similar sequence up to the pretest, participated in similar environmental conditions, and both portrayed comparable uneasiness to being part of a new group. The results, however, indicated significant differences between groups one and three, as well as groups four and five. In addition, pretest cohesion scores for all groups were higher than expected.

The most likely reason for this is the timing of when the pretest was administered. For this study it was given immediately following a name game. This name game was designed to break the ice of the group and to introduce group members to each other. Results from this preliminary analysis indicate the influence and impact of a simple name game on group cohesion in a positive fashion. Research from Carron et al., (1985) supports these findings. Group cohesion is explained by four main components, two of which can are being revealed in these results; Group Integration-Social (GI-S) and Interpersonal Attraction to the Group-Social (ATG-S). GI-S refers to the feelings of the group as a whole regarding closeness, similarity, and connection as a social unit. The name game used in this study asked participants to share things they have done before, while others in the group had to acknowledge their participation in the same activities by moving to a different place marker in the circle. This allowed group members to immediately establish similarities and connections as outlined in one of the key components of GI-S. This clearly allowed for cohesion to start taking place prior to the pretest.

The ATG-S refers to individual group members' feelings about their acceptance and social interaction with the group. With this being a freshman cohort where no group members had prior relationships with each other, it is conceivable that participants were eager to make connections prior to school starting. Participants may have felt from the name game and the way individuals conducted themselves that social relationships could exist outside the group (Carron, et al., 1985), thus causing cohesion to take place prior to the pretest. It's also possible in the few minutes as people filtered into the course that individuals start to make these same connections.

In addition to the reality of cohesion taking place prior to the pretest, it is possible that the facilitators had an impact on the differences between groups. Facilitators potentially became more or less efficient and effective in explaining the purpose of the pretest questionnaire. Though scripts were followed, minor deviations in tone and body language may have impacted the results.

***Hypothesis Testing.*** This study examined four main hypotheses dealing with perception of risk and group cohesion. The first hypothesis looked at whether or not high element participants would self report higher levels of perception of risk than low element participants. Results indicate that participants feel an increased perception of risk as a result of participation in high elements ($p = .00$). Therefore we accept the alternative hypothesis, high elements self report higher levels of perceived risk than low elements. This supports the findings of Rastall (1997) where his subjects also felt an increase in perception of risk. This also supports the industry's belief regarding the perceptions of high elements. Though this does not provide significant contributions it

does help support and provide empirical evidence in that high elements in a challenge course are perceived riskier then low elements.

The second hypothesis explored whether those who experience higher levels of perceived risk from high elements will self report higher levels in group cohesion. Results from this study indicated that there was a lack of support showing that higher levels of perceived risk produce higher levels in group cohesion. Thus, the hypothesis is inconclusive. These results support the questions Wolfe and Samdahl (2005) bring up; whether it is necessary to manipulate perceived risk to achieve certain outcomes. It is safe to say that for group cohesion, perceived risk does not have a significant impact on outcomes. This means it is not necessary to put people in perceived risk situations to achieve group cohesion, but it also means that perceived risk does not take away from a group's ability to achieve group cohesion.

These results also clarify Stokes' (1983) research on perceived risk and group cohesion where it was believed that those groups who take the most risk tend to have the greatest cohesion. Stokes vehicle for risk taking was intimate self-disclosure and expressions to group members. The results of this study imply that it is more the intimate self-disclosure and expressions than the actual act of taking perceived risks that lead to group cohesion.

Adventure education is built on the foundation that uncertainty and risk in the pursuit of outcomes is crucial (James, 1995). The lack of significant differences between perceptions of risk in this study potentially opens the door for further examination in specifics that lead to outcomes. Perhaps it is not perceived risk that leads to the cohesion, but more the shared experience.

The third hypothesis asked if participation in a high element challenge course would produce higher levels of group cohesion than a low element challenge course. After investigating, there is a lack of support for the alternative hypothesis; there is no difference in cohesion between low and high element groups. This means that similar group cohesion took place whether one is participating in high elements or low elements. This supports that high elements can produce similar cohesion outcomes as a low element only course. Another way to look at it is that high elements do not take away or add to group cohesion when comparing to low element courses.

Although not a part of this hypothesis, results indicate that cohesion increased from pretest to post-test for both low element and high element courses. These results are similar and support Glass and Benshoff (2002) study where participants also experienced and increase in group cohesion from pre to post-test. This also supports the design and implementation of this challenge course experience for the cohort used in this study. Neill and Richards (1998) speculate design and delivery could be the most crucial factors in a program's effectiveness. The design of this course could be used for programs looking for the outcome of group cohesion.

The last hypothesis tested was whether or not participants experiencing higher levels of perceived risk will self-report the outcomes from the experience as positive. Results did show high element participants with higher perceived risk had a mean score of 3.88 on a scale of one to four. This clearly reveals that for this group the experiences were positive, thus the hypothesis is accepted.

This starts to answer questions raised by Wolfe and Samdahl (2005) regarding if putting people in a manipulated perceived risk situation results in positive outcomes.

Interestingly enough, however, no significant difference was found between high and low levels of risk on positive outcome. This means that perceived risk does not necessarily dictate whether the experience is positive or not. Again it is possible just going through a shared experience can formulate positive outcomes. This line of thinking is supported by general experiential education theories (Priest & Gass, 2005, p. 155).

***Limitations.*** The first limitation of this study is that it only examined a First Year Experience Cohort. Students from this cohort do not necessarily reflect that of the general incoming freshman population due to the students being conditionally accepted into the university based on low test scores and grade point averages from high school. It is difficult to generalize results from this group to all incoming freshmen.

The second limitation identified for this study is that due to limited availability of both students and the challenge course used, only three and a half hour programs were conducted. This typically is a minimum number of hours required for a challenge course experience. Courses range in length from a couple of hours to multiple days. Results from this study will be hard to generalize findings from other longer or shorter challenge course experiences.

Another limitation to this study is the lasting impact of cohesion on the course may not necessary be the same in everyday life. While cohesion was found to increase from pretest to posttest, this study did not examine the duration of these findings.

Facilitator presentation styles were not able to be controlled, thus resulting in another limitation. The two facilitators were given scripts and program plans to follow, but it is difficult to control tone and body language as activities are given. In addition one facilitator was female and the other was male.

The last limitation to this study was the three item perceived risk scale. These three questions revealed low reliability at the pretest and moderate reliability at mid-test and post-test. The results regarding perceived risk could be adversely affected by the scale's inability to appropriately measure the question's ability to measure what it is asking.

**Recommendations**

Based on the results of this study there are several implications for challenge course programs. The first revolves around the outcomes from high elements. Wolfe and Samdahl (2005) questioned the benefits of purposefully putting someone in a perceived risk situation. Results from this study indicate that positive outcomes exist when participants are exposed to a perceived risk situation on a challenge course. Both low and high element participants scored similarly in reference to the outcomes being positive. This means the high element programs do not take away from a group's ability to build cohesion. As such, this study adds credibility to the claims that participation in a high elements course produces positive outcomes, especially for incoming freshman.

This also means that groups experiencing extreme anxieties toward participation in high elements could opt out and still have the ability to achieve similar outcomes in group cohesion. Participation in high elements usually increases the cost for a group. Based on this study's results, groups with limited budgets could build similar cohesion levels at a lower expense using only low elements.

The results also indicate that if a challenge course program is going to be focusing on the outcome of group cohesion, then the expense of building a high element course is not necessary. High element challenge courses are very costly to build and maintain.

The increase in expense is passed along to the participating groups. The results in this study might help justify a program in building a low element only course.

In addition, practitioners could use the template in this study to program for the outcome of group cohesion. Results indicated that the template used (Appendix F) increased group cohesion for both types of groups from pretest to posttest.

***Future Research.*** There are several recommendations for future research as a result of this study. The first recommendation is to conduct the pretest prior to any name game, activity, or entering of the challenge course. There is evidence in this study that suggests the possibility that significant cohesion can take place by simply engaging in a name game. Future research should recognize this and provide pretests to participants prior to them entering the challenge course.

Future research should also focus on developing a reliable perceived risk scale that can be used in a challenge course setting. This scale should address the need for a short concise scale that can be combined with other scales to deal with the relationship between perception of risk and outcomes achieved in a ropes course setting. Developers of this scale should deal with perception of risk for both physical and emotional risk as outlined by Beedie (1994).

It would also be prudent for future research to expand the scope of participants to the general freshman population. This study focused on one particular cohort at one State University. Future research should consider investigating a random sample of the entire freshman population at several different universities. The selection of universities should consider a diverse geographical area. Gathering data from other regions might give insight into the effects of the challenge course on participants from a variety of

backgrounds. This would broaden the research's ability to generalize to all incoming freshman and provide a better understanding of the impact of this type of program on populations at other universities.

Also, the exploring of the effects of a name game could provide challenge courses and group cohesion seekers valuable information. This study revealed the potential ability of a simple name game on cohesion in a challenge course setting. Future research might be able to understand the role that name games play in a challenge course setting.

Lastly, future research should explore the lasting effects of the cohesion of these types of programs. Does the increase in cohesion remain the same throughout the semester? Is there a decrease in cohesion as freshmen establish their daily routines? Are there steps that can be taken to maintain cohesion if there is research to support there is a decrease in cohesion throughout the semester? These questions might help better understand the lasting effect of using a challenge course program in freshman orientations.

**Conclusion**

This research explored the impact of perceived risk from high elements on group cohesion. Group cohesion is identified by many as one of the most instrumental aspects that lead groups to success (Goldembiewski, Hilles, & Kango, 1974; Murray, 1981; Hall, 1985; Evans & Jarvis, 1980). Bai and Pan (2009), also believe it to be one of the most important aspects of a freshman first year experience. The goal was to see if perception of risk would increase the group's ability to become cohesive. The results indicated that perception of risk from high elements does not lead to an increase in cohesion when compared to a low element only challenge course. It is, however, important to note that

similar increases from pre to post test between low and high element groups resulted in a similar increase in cohesion.

To clarify, cohesion was increased in the high element groups, just not significantly more than the low element only groups. The impact found in this study does not indicate that perception of risk pulls groups together, nor does it indicate that groups are pulled apart due to perception of risk. Perception of risk simply does not impact a group's ability to become cohesive. Contrary to Wolfe and Samdahl (2005) increased perception of risk does not lead to negative outcomes. This study provides support that despite an increase in perception of risk, participants still feel the experiences are positive.

This study provides a foundation for future investigation of the role of perception of risk in a challenge course setting. Practitioners and researchers should work together to further understand the impact of manipulating challenges to increase perception of risk.

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# Appendix A: Informed Consent

## INFORMED CONSENT FORM

You are invited to participate in a study conducted by Ryan Soares, a faculty member at California State University, Fresno and Dr. Jeff Jacobs, a faculty member at California Polytechnic State University, San Luis Obispo. We hope to learn about the impact of perceived risk from high elements in a challenge course on group cohesion. You were selected as a possible participant in this study because you are a member of California State University Fresno First Year Experience Program.

If you decide to participate in this study, you will be asked to complete three questionnaires regarding your three and a half hour challenge course experience. Each questionnaire is designed to capture your perception of the group's cohesion and levels of perceived risk. The questionnaires have approximately 12 questions each and should take less than 10 minutes to complete each. They will be given at the beginning, middle, and end of your challenge course experience.

Activities will include both physical and mentally challenges at ground level and as high as 30 feet off the ground. You and 16 other students will work together through team initiatives, puzzles, and obstacles. You will have the option of choosing your level of participation in all the activities while at the challenge course. As a result of your participation in this study and in the E.D.G.E. Challenge Course you may be exposed to the below risks. With each risk outlined, there is a prevention and solution/treatment that should be reviewed prior to making a decision whether or not to participate. If injury does occur you are encouraged to let the challenge course staff know immediately and/or contact Ryan Soares (559-301-6356).

| | Risks | Prevention | Solution/Treatment |
|---|---|---|---|
| 1. | Walking into cables/poles and tripping on uneven terrain. | Be alert. Look where you are walking in the course. | Inform Staff of injuries for assistance. |
| 2. | Getting hit by a falling object. | Be alert. Look up before walking near or under course elements. Wear a helmet. | Inform Staff of injuries for assistance. |
| 3. | Hair, clothing, or jewelry getting caught in parts of the challenge course equipment. | Have long hair tied back. Remove rings, dangling earrings, watches, etc., and wear proper clothing for physical activity. | If caught, remain calm and ask Staff for assistance. |
| 4. | Injuries or discomfort caused by wearing of harness. | Tie harness as secure as possible and check for any loosening throughout the day. Have tied harness checked by two different Staff members. | If you have any questions or doubts, ask Staff for assistance. |
| 5. | Scrapes and cuts. | Climb within abilities. Wear proper clothing outlined by the E.D.G.E. Challenge Course. | Inform Staff of any injuries. |
| 6. | Broken bones, dislocations, and other serious injuries. | Be alert. Do not engage in an element without listening to instructions for proper technique. | Inform Staff of injuries for assistance. |

Potential benefits from participation in this study are both personal and institutional. As a participant you may gain friendships and build group cohesion within your cohort. You may also achieve personal satisfaction from contributing to the body of knowledge related to outcomes of a challenge course and first year experience programs. This knowledge could help shape future plans for your cohort. We cannot guarantee, however that you will receive any benefits from this study.

Any information that is obtained in connection with this survey that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. If you give us your permission by signing this document, we plan to disclose only your relation to California State University, Fresno First Year Experience cohort and only for the purposes of reporting and/or publishing our findings.

Your decision whether or not to participate will not prejudice your future relations with California State University, Fresno. If you decide to participate, you are free to withdraw your consent and to discontinue participation at any time without penalty. The Committee on the Protection of Human Subjects at California State University, Fresno and the Human Subjects Committee at California Polytechnic State University has reviewed and approved the present research.

If you have any questions, please ask us. If you have any additional questions later, Ryan Soares (rsoares@csufresno.edu, 559-278-2838) and Dr. Jeff Jacobs (jacobs@calpoly.edu, 805-7567628) will be happy to answer them. You may also contact the chair of the Committee on the Protection of Human Subjects at California State University, Fresno Dr. Connie Jones (conniej@csufresno.edu, 559-278-4468) or Dr. Steve Davis, Chair of the Cal Poly Human Subjects Committee, at 805-756-2754 (sdavis@calpoly.edu), or Dr. Susan Opava, Dean of Research and Graduate Programs, at 805-756-1508 (sopava@calpoly.edu).

You will be given a copy of this form to keep.

YOU ARE MAKING A DECISION WHETHER OR NOT TO PARTICIPATE. YOUR SIGNATURE INDICATES THAT YOU HAVE DECIDED TO PARTICIPATE, HAVING READ THE INFORMATION PROVIDED ABOVE.

Participant's Signature

Print Name: _____

Signature: _____ Date: _____

Parent/Guardian's Signature (if under 18 years of age)

Print Name: _____

Signature: _____ Date: _____

Appendix B: Waiver

**CALIFORNIA STATE UNIVERSITY, FRESNO**
**RECREATION ADMINISTRATION AND LEISURE STUDIES**

## E.D.G.E. CHALLENGE ROPES COURSE

**DISCLOSURE**

The E.D.G.E. Course involves a variety of activities including warm-ups, games, group initiative problems, low and high challenge course elements, and other rigorous physical adventure activities. The level of participation in the course is entirely voluntary. Safety measures have been designed into the program (highly trained staff, state-of-the-art equipment and strict safety standards) to safeguard all participants against possible injury. As with any program of this type, there is a risk which must be assumed by each participant that he or she may experience an emotional or physical injury.

**PARTICIPANT INFORMATION**

Certain health/medical information must be made known to the instructor(s) conducting the program so that they are prepared to respond appropriately if the need arises. This information will be held in confidence. Please complete the form and return it prior to participating in any activities.

1. Name: _____

   CSUF Student I.D.# (If applicable): _____

2. Do you have health/accident insurance? _____ Yes _____ No
   If yes, name company: _____

   Policy Number _____

3. Do you have limiting physical disabilities or limitations (temporary or permanent, including but not limited to pregnancy, asthma, heart condition, diabetes, depression, etc.)?
   _____ Yes _____ No (If yes, identify and explain) _____

4. Are you currently taking medication (prescribed or otherwise)? _____

_____

5. Do you have any allergic reactions to medications, any other medical limitations?

   _____ Yes _____ No (If yes, identify and explain) _____

   _____

**RELEASE OF LIABILITY**

I understand that parts of the course may be physically or emotionally demanding. I affirm my health is good, and that I am not under a physician's care for any undisclosed condition that might endanger my health or that on other participants. I recognize the inherent risk of injury or disability in the E.D.G.E. Challenge Course activities. I understand that each participant must assume the risk of physical injury that could result from any of these activities. I release the owners/operators, the Recreation Administration and Leisure Studies Program, California State University, Fresno and its faculty/staff from all liability for any injury to me from participation in the course.

**MEDICAL PERMISSION AGREEMENT**

I hereby give permission to assume responsibility for securing necessary medical care for the well being of myself _____ as long as I am a participant in the course. In case of sudden medical emergency, I give the hospital permission to secure any needed medical or surgical care. I understand that the owner/operator is not responsible for any medical expenses incurred.

_____
Date

_____
Participant's Signature (if at least 18 years or older)

_____
Participant's Address

_____
City, State Zip Code

_____
Home Phone Number Business Phone Number

_____
Parent/Guardian's Signature (if under 18 years of age)

For Staff Use Only

Responses to questions #3, 4, 5 reviewed by:

_____ _____
Signature Date

_____
Title

LJF:hy/edge.doc

# Appendix C: Questionnaire Pretest

Group # _____
Identification # _____

**GROUP COHESION EVALUATION QUESTIONNAIRE PRE-TEST**

Please tell us which of the following statements best describes you and your group.

| | | NOT AT ALL LIKE ME/MY GROUP | A LITTLE LIKE ME/MY GROUP | A LOT LIKE ME/MY GROUP | EXACTLY LIKE ME/MY GROUP |
|---|---|---|---|---|---|
| 1) | We get along well together. | 1 | 2 | 3 | 4 |
| 2) | We feel good about our team. | 1 | 2 | 3 | 4 |
| 3) | We enjoy helping each other. | 1 | 2 | 3 | 4 |
| 4) | We stick together during the challenges. | 1 | 2 | 3 | 4 |
| 5) | We help each other on the challenges. | 1 | 2 | 3 | 4 |
| 6) | We encourage each other in the challenges. | 1 | 2 | 3 | 4 |
| 7) | I feel like I fit in my group. | 1 | 2 | 3 | 4 |
| 8) | I feel like my group will keep me safe. | 1 | 2 | 3 | 4 |
| 9) | I want to work on more challenges with my group. | 1 | 2 | 3 | 4 |
| 10) | I am concerned someone might get physically hurt with today's challenges. | 1 | 2 | 3 | 4 |
| 11) | I am concerned about the potential for embarrassment because of my or my groups performance. | 1 | 2 | 3 | 4 |
| 12) | I would consider myself a risk taker. | 1 | 2 | 3 | 4 |
| 13) | Overall I feel like I am going to be taking a risk with today's challenges. | 1 | 2 | 3 | 4 |

**More questions on the back of this page**

14) Are you Male or Female? Circle one

15) What is your age? _____

16) What is your ethnicity? Check one
- ☐African American or Black
- ☐Asian American/Asian/Indian (e.g. Chinese or Japanese)
- ☐Latino, Latin American, Puerto Rican, Mexican American, Chicano or other Hispanic
- ☐SE Asian American/SE Asian (e.g. Cambodian, Hmong)
- ☐Pacific Islander, Filipino
- ☐Caucasian (non-Hispanic)
- ☐Native American/Alaskan Native
- ☐Other _____

Appendix D: Questionnaire Mid-test

Group # _____
Identification # _____

**GROUP COHESION EVALUATION QUESTIONNAIRE MID-TEST**

Please tell us which of the following statements best describes you and your group.

| | | NOT AT ALL LIKE ME/MY GROUP | A LITTLE LIKE ME/MY GROUP | A LOT LIKE ME/MY GROUP | EXACTLY LIKE ME/MY GROUP |
|---|---|---|---|---|---|
| 1) | We get along well together. | 1 | 2 | 3 | 4 |
| 2) | We feel good about our team. | 1 | 2 | 3 | 4 |
| 3) | We enjoy helping each other. | 1 | 2 | 3 | 4 |
| 4) | We stick together during the challenges. | 1 | 2 | 3 | 4 |
| 5) | We help each other on the challenges. | 1 | 2 | 3 | 4 |
| 6) | We encourage each other in the challenges. | 1 | 2 | 3 | 4 |
| 7) | I feel like I fit in my group. | 1 | 2 | 3 | 4 |
| 8) | I feel like my group will keep me safe. | 1 | 2 | 3 | 4 |
| 9) | I want to work on more challenges with my group. | 1 | 2 | 3 | 4 |
| 10) | I feel like there was a risk associated with the previous challenges. | 1 | 2 | 3 | 4 |
| 11) | I feel like the outcomes of the previous challenges were positive. | 1 | 2 | 3 | 4 |
| 12) | I am concerned someone, including myself might get physically hurt with the next challenges. | 1 | 2 | 3 | 4 |
| 13) | I am concerned about the potential for embarrassment because of my or my group's performance with the next challenges. | 1 | 2 | 3 | 4 |
| 14) | Overall, I feel like I am going to be taking a risk with the next challenges. | 1 | 2 | 3 | 4 |

Appendix E: Questionnaire Post-test

Group # _____
Identification # _____

## GROUP COHESION EVALUATION QUESTIONNAIRE POST-TEST

Please tell us which of the following statements best describes you and your group.

| | | NOT AT ALL LIKE ME/MY GROUP | A LITTLE LIKE ME/MY GROUP | A LOT LIKE ME/MY GROUP | EXACTLY LIKE ME/MY GROUP |
|---|---|---|---|---|---|
| 1) | We get along well together. | 1 | 2 | 3 | 4 |
| 2) | We feel good about our team. | 1 | 2 | 3 | 4 |
| 3) | We enjoy helping each other. | 1 | 2 | 3 | 4 |
| 4) | We stick together during the challenges. | 1 | 2 | 3 | 4 |
| 5) | We help each other on the challenges. | 1 | 2 | 3 | 4 |
| 6) | We encourage each other in the challenges. | 1 | 2 | 3 | 4 |
| 7) | I feel like I fit in my group. | 1 | 2 | 3 | 4 |
| 8) | I feel like my group will keep me safe. | 1 | 2 | 3 | 4 |
| 9) | I want to work on more challenges with my group. | 1 | 2 | 3 | 4 |
| 10) | I feel like the was a risk associated with the previous challenges. | 1 | 2 | 3 | 4 |
| 11) | I feel like the outcomes of the previous challenges were positive. | 1 | 2 | 3 | 4 |
| 12) | I was concerned someone, including myself might get physically hurt with the today's challenges. | 1 | 2 | 3 | 4 |
| 13) | I was concerned about the potential for embarrassment because of my or my groups performance with the today's challenges. | 1 | 2 | 3 | 4 |
| 14) | Overall, I feel like I was taking a risk in today's challenges. | 1 | 2 | 3 | 4 |

# Appendix F: Sequence of Elements/Activities

Sequence of Activities

INTRODUCTION - 30 minutes

Intro - introduce the course, normal safety things to watch for, and layout for the day, all as you normally would
Research - Explain the process of filling out the surveys, brief reason why we are doing this research and assure confidentiality
Name game - Have you ever? Or Speed name game
Pre-test survey - pass out pretest, complete and collect

UNIVERSAL LOW ELEMENTS - 1 hour 50 minutes

Quickest game ever
Ro-sham-bo
Group Jump Rope
Teeter
Nitro
Break
Mid-test survey

GROUPS 1, 2, 3 - COMPLETING ONLY LOW

Spider web
Alligator crossing

Note: Every person gets through or across the element gets a McDonalds Ball - goal is to try filling up a 5 gallon bucket

GROUPS 4, 5, 6 - COMPLETEING BOTH LOW AND HIGH - 1 hour

Quantum Leap – all together
Catwalk
Kings Crossing/Multi Vine
Giant Swing

Note: Every person goes on a high element gets a McDonalds Ball - goal is to try filling up a 5 gallon bucket

FINISHING THE DAY - 10 minutes

Post-test survey
Debrief

Appendix G: Human Subjects Approval CSU, Fresno

CALIFORNIA
STATE
UNIVERSITY,
FRESNO

**MEMORANDUM**

Date: June 29, 2010

To: Ryan Soares, Principal Investigator
Department of Kinesiology

From: Constance Jones, Chair
Committee for the Protection of Human Subjects

Subject: **PROTOCOL 518: The Impact of Perceived Risk from High Elements in a Challenge Course on Group Cohesion**

The Committee for the Protection of Human Subjects performed a full review of your project and on 5/27/10 requested revised documents and additional information before approval. All materials were received 6/26/10, and you are now approved to proceed with your project.

Approval for your project expires 6/29/11. Should your study last longer than one year, submit an Annual Renewal Form (found on the webpage at www.csufresno.edu/humansubjects/documents/annual_renewal.doc) before that
date.

Best of luck with your research!

**Committee for the Protection of Human Subjects**

Office of the Provost and
Vice President for Academic Affairs
Harold H. Haak Administrative Center,
Henry Madden Library
5200 N. Barton Ave., MS ML 54
Fresno, CA 93740-8014
559. 278-4468
Fax 559. 278-8340
http://www.csufresno.edu/humansubjects/

Appendix H: Human Subjects Approval Calpoly

**Zimbra** rsoares@csufresno.edu

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## Human Subjects Approval

**From :** Debbie A. Hart <dahart@calpoly.edu> Wed, Aug 11, 2010 04:34 PM

**Subject :** Human Subjects Approval

**To :** rsoares@csufresno.edu

Ryan:

The Cal Poly Human Subjects Committee has conducted an expedited review of your proposal "The Impact of Perceived Risk in Challenge Courses on Group Cohesion" and has approved the project.

However, before you can proceed with the project, please make the following corrections to the consent form and submit them to our office so that our records are complete (you can email the corrected documents back to me).

The corrections are on the Consent Form:

Add "The Human Subjects Committee at California Polytechnic State University has also approved it." to the end of the paragraph that starts "Your decision whether or not ...."

Also add contact information for Cal Poly after the contact information for the CSU Fresno Human Subjects chair. This is our template for this statement: "If you have questions or concerns regarding the manner in which the study is conducted, you may contact Dr. Steve Davis, Chair of the Cal Poly Human Subjects Committee, at 805-756-2754, sdavis@calpoly.edu, or Dr. Susan Opava, Dean of Research and Graduate Programs, at 805-756-1508, sopava@calpoly.edu."

This approval extends through August 10, 2011 (i.e., for one year). If your data analysis continues beyond this date, please contact Dr. Susan Opava about an extension of approval from the Cal Poly Human Subjects Committee.

Please be aware that it is your responsibility as the person in charge of this research project to ensure that, with respect to human subjects, the work is carried out as described in the proposal and the rights of the subjects are fully protected.

Debbie A. Hart
Assistant to the Dean
Research and Graduate Programs 38-154
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San Luis Obispo, CA 93407
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dahart@calpoly.edu